3-D Solid Modeling and Design

Student Learning Activities
for

Activity #7

PTC

Pro/DESKTOP® 8.0

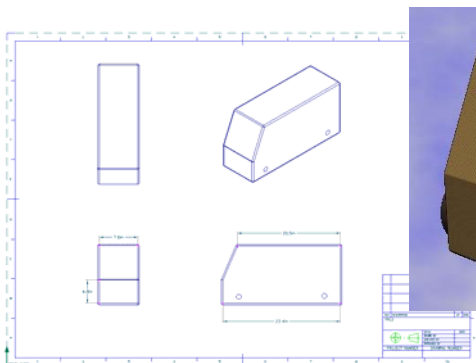Davis School District
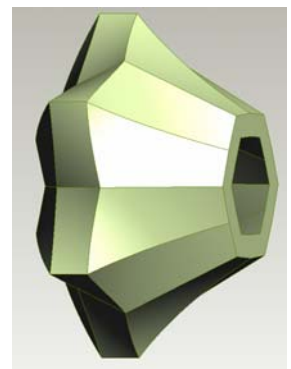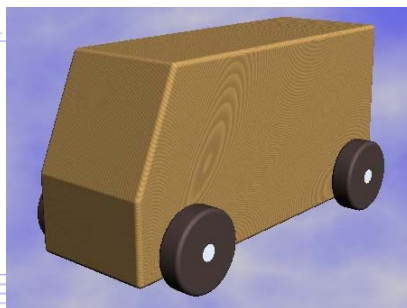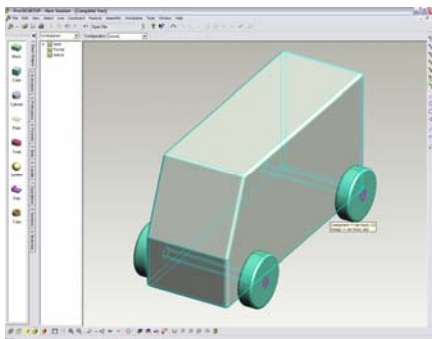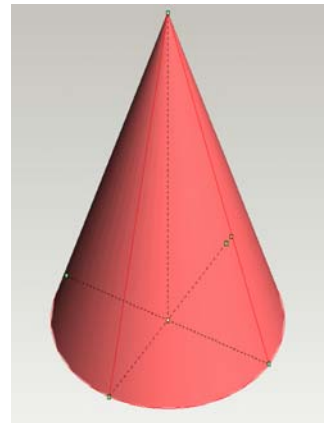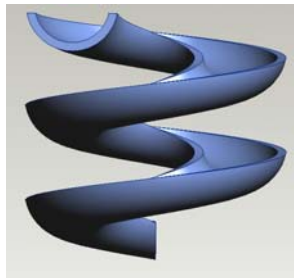
Activity 7:

<u>Hot colors; hot keys; cool designs</u>

<u>About the program</u>

Pro/Desktop (called 'PD' from now on) is a powerful software program that allows you to sketch ideas first, and then work on design details later.

This activity will help you:
- ➢ Apply colors and designs to your design
- ➢ Learn 'Hot keys' for commands in PD

<u>Photo Album</u>

Open your completed camera **design** (not engineering drawing) and place it in the workplane view. Click on the **File** pull-down menu and select 'New' and then 'Photo album'. Go to 'Image' and then 'New image'. Select your camera body. Click OK.

In the Object Browser Pane, select 'Materials'.

A list of materials that you can apply to the look of your design appears in the Object Browser Pane. Click on any one of the 'plus' signs to open the colors/designs. Select a color that you would like the camera lens ring to be. **Click and drag** it onto the lens ring until the ring turns active (**red**). Click the Update icon. That color or design has now been applied to the lens ring. Continue to color the flash and camera body.
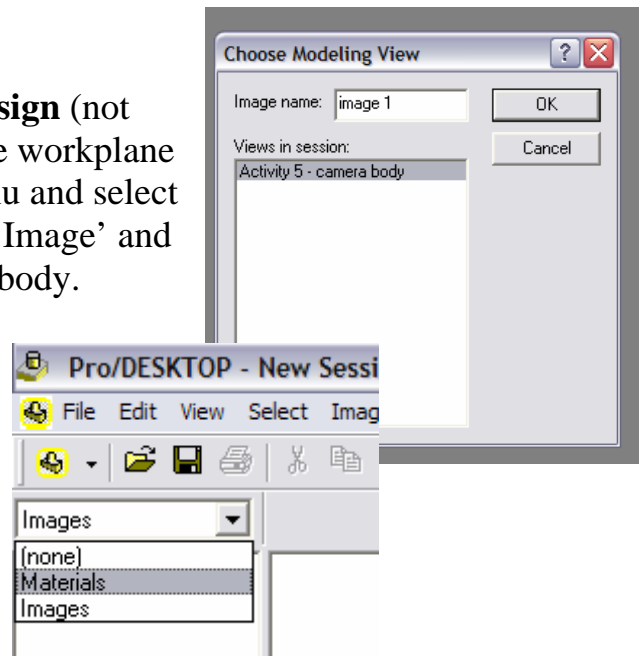
Once you have all items the colors
and designs you want to keep, you
will apply a background.
To do this, click on the 'Images' pull-down
Menu. Go to 'Image Properties'
and select the 'Effects' tab.
Leave the Foreground with no effect,
And select from the different options
for a background effect.
Click the Update icon when done.
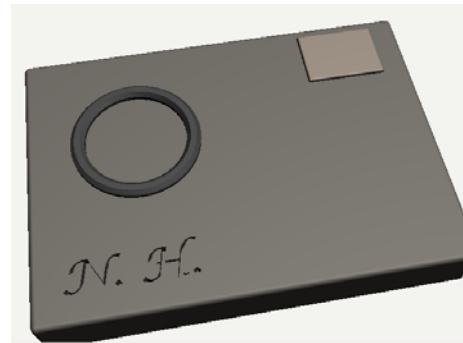
SAVE your album
photo according to your
instructor's directions.

Hot Keys

'Hot keys' are combination of keys on the
keyboard that, when pressed, will allow you to
jump right to a command instead of using pull-
down menus or multiple clicks with the mouse.
For example, one way to open a new sketch is
to click on the 'Workplane' pull-down menu,
and then 'New Sketch'. Notice that in that same
command window (off to the right) 'Ctrl+K'
appears. That is the 'Hot Key' command to
open a new sketch by simply holding the
Control key and pressing 'K'.
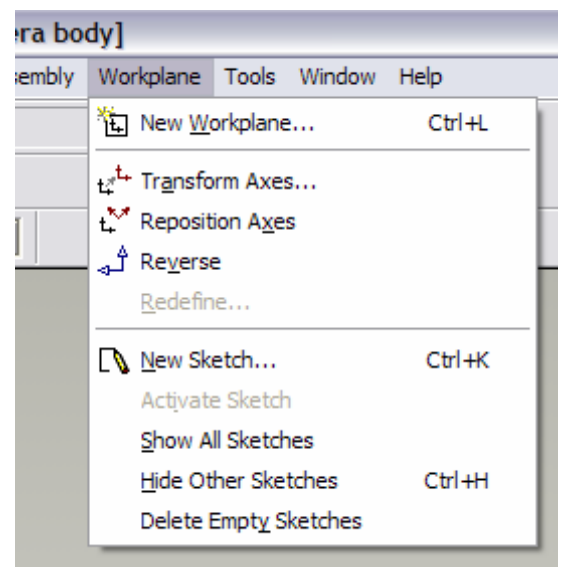
Even faster, when you are in an active sketch, simply pressing 'R' activates the Rectangle drawing tool; 'C' for circle. Below is a list of commonly used Hot Keys. Some we have covered, others we have not:
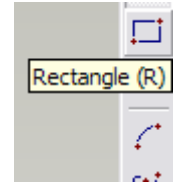
Command	Hot Key	Command	Hot Key
Arc	T	Rectangle	R
Autoscale	Shft + A	Right Elevation	Cntrl + R
Autoscale Selection	Shft + S	Save	Cntrl + S
Circle	C	Select All	Cntrl = A
Components Browser	Shft + C	Select Edges	E
Configurations	Alt + 3	Select Faces	F
Constraints	N	Select Features	A
Delete Line Segments	D	Select Lines	L
Design Rules	Alt + 2	Select Parts	P
Duplicate	Cntrl + D	Select Workplanes	W
Ellipse	I	Shaded View	F10
Enhanced View	F12	Sketch Dimensions	Z
Features Browser	Shft + E	Spline	B
Front Elevation	Shft + N	Straight Line	S
Half Scale	Shft + H	Toggle Construction	Cntrl + G
Hide Other Sketches	Cntrl + H	Toggle Fixed	Cntrl + F
Isometric View	Shft + I	Toggle Reference	Cntrl + R
Manipulate View	Mouse Wheel	Toggle Filled	Cntrl + Shift + F
New Design	Cntrl + Shft + D	Toggle Rigid	Cntrl + Shft + R
New Engineering Drawing	Cntrl + Shft + E	Transparent View	F11
New File	Cntrl + N	Tumble	Shft + U
New Photo Album	Cntrl + Shft + A	Undo	Cntrl + Z
New Sketch	Cntrl + K	Update	F5
New Workplane	Cntrl + L	View Onto Face	Shft + F
Next View	Alt + Right mouse button	View On Workplane	Shft + W
Open File	Cntrl + O	View Trimetric	Shft + T
Pan	Mouse Wheel + Shft	Wireframe View	F9
Plan View	Shft + P	Workplane Browser	Cntrl + W
Previous View	Alt + Left mouse button	Zoom	Shft + Z
Print	Cntrl + P		

Try to create the following using as many Hot Keys as you can
 (**you do not need to save any of these**):

-A new sketch of an 8" Ø circle in the Isometric view that is Autoscaled.

-Open your file 'Cube' from Activity #2; set it to half scale and tumble it.

-Open your camera lens from Activity #5 and view it in Isometric in the shaded view.

Once learned, Hot Keys can save a lot of clicking and time.

Freehand

Many times an idea will come that doesn't fit into a nice square or a perfect circle. When you want to 'freehand' sketch and design, keep in mind a couple of things:

　　-As you use tools like Straight Line, Spline, and Arc, make sure that you always see the little black 'handles' appear as you join one line to the next, or there will be gaps in between them and they will not be able to be a valid profile.

　　-The 'Delete Lines' command (Hot Key 'D') comes in handy if you have extra lengths of lines past your desired sketch.

Create a new design in PD of any shape and size using the Line and Arc commands. Place a small Circle, Ellipse, Rectangle, and Spline shapes anywhere inside the design. Click on the ending point (handle) of each segment as you add a new one to it. As you go to join the very last two lines, purposely overlap them so that each has an extra line sticking out as seen here:
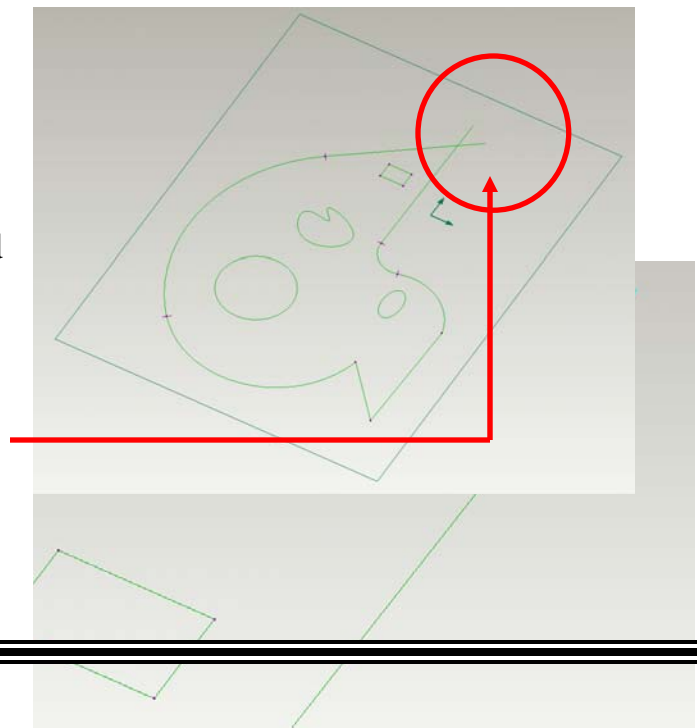
Using the 'Delete Line Segments'

hot key, trim the extra length of lines until both are gone.
Notice what happens as soon as you finish. A small purple handle appears.
This is the constraint known as the 'Coincident point' that tells that the lines
are truly connected.

Right clicking on the point and selecting
the constraint Inspector will show it as an
active, valid constraint. →
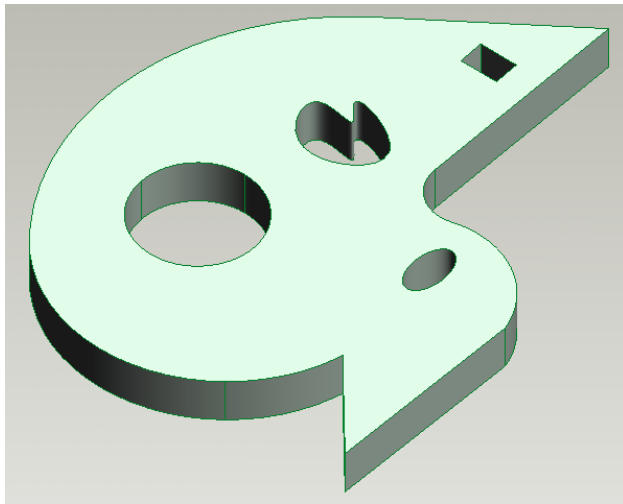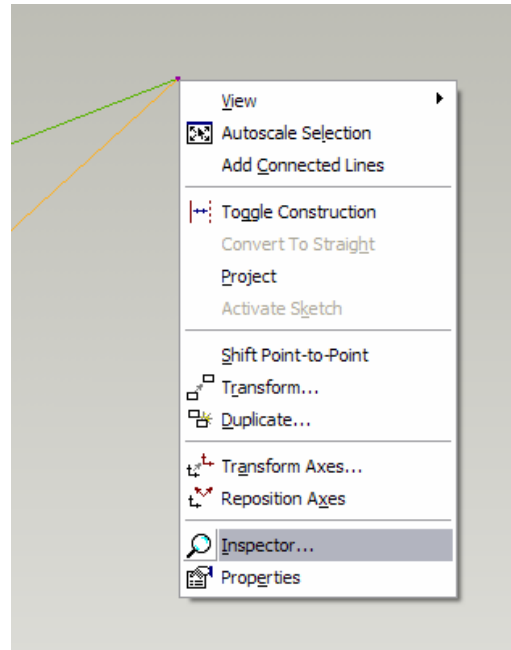
To verify that it is a valid profile, try
extruding it (to any *z* axis size). If
the lines did not connect, it will not
extrude.

Using the drawing tools and Hot Keys, see if you can copy the following
designs. Save each according to the directions of your instructor (hint: the
Delete Lines icon was used a lot in one of these!):
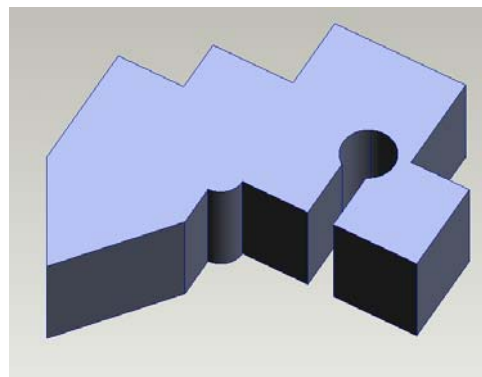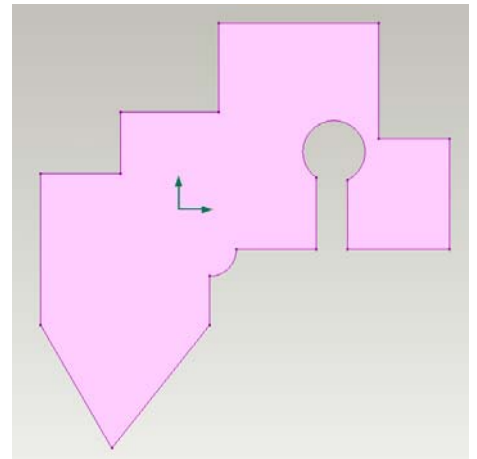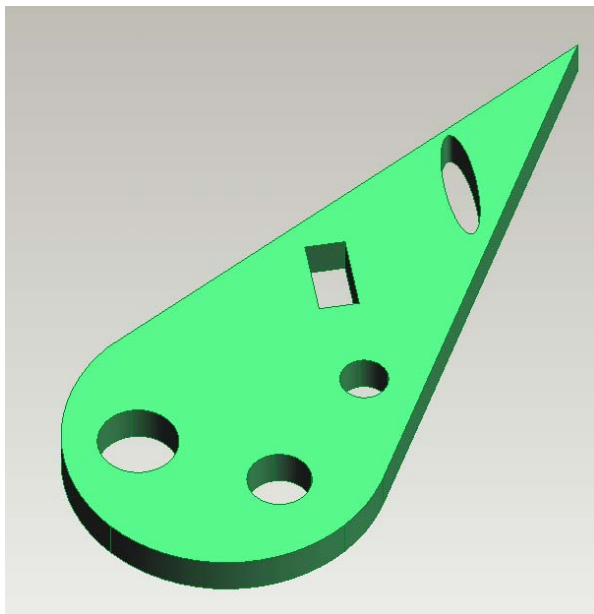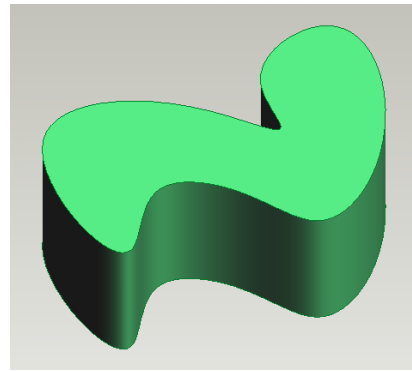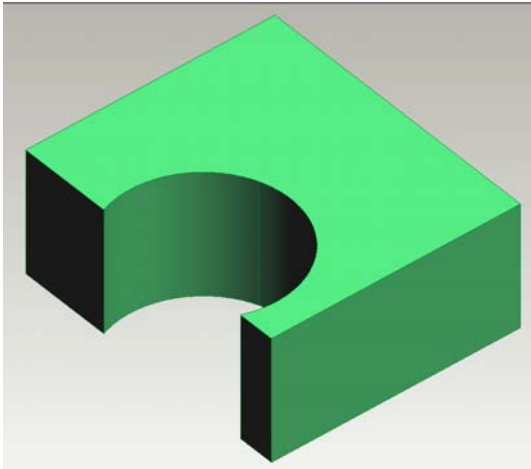
SAVE your designs according to your instructor's directions.

You have completed this activity using PD! Please exit the program.